

minimalist concept of cause and effect, in which an event that regularly precedes another type of event can be denoted as its cause; Hume thought no further explanation should be sought. Being generally skeptical of the human capacity to satisfactorily address metaphysical issues, the logical empiricists went a step further and tried to avoid reference to causes by focusing instead on the linguistic statement of laws. They developed a conception of explanation, known as the *deductive-nomological model* of explanation, that involved derivation of an observation statement from statements of laws along with statements specifying initial conditions (Hempel & Oppenheim, 1948).

In contrast to the logical empiricists, Wesley Salmon (1984) developed an account of scientific explanation that made the notion of cause itself central. For Salmon, the way to answer the question of why something happened was to identify what caused it. Salmon tried to formulate a non-problematic account of what a cause is, but his proposals have in turn been the focus of critical objections.¹ I will not pursue this debate because my interest in Salmon is not in his analysis of causation, but his characterization of his account as “causal-mechanical.” Salmon was one of the first twentieth-century philosophers of science to revive the interest in mechanistic explanation. It is not clear, however, what Salmon intended by invoking the term *mechanical*. As Glennan (2002) noted, Salmon never explicated the notion of a mechanism, settling instead for such comments as “explanations reveal the mechanisms, causal or other, that produce the facts we are trying to explain” (Salmon, 1989, p. 121).

Before advancing an account of what a mechanism is, though, let me note an important respect in which Salmon’s account offers a significant advance over seventeenth- and eighteenth-century mechanical philosophy. Whereas the early modern mechanists allowed only such properties as the shape and motion of particles to figure in accounts of mechanisms, Salmon (1984, p. 241) broadened the category to include such constructs as force fields: “We have to change our mechanistic view from the crude atomism that recognizes only the motions of material particles in the void to a conception that admits such non-material entities as fields, but for all of that, it is still a mechanistic world view. Materialism is untenable, but the mechanical philosophy, I believe, remains viable.” This expansion repairs the breach in the mechanical philosophy introduced by Newton’s appeal to forces. Mechanical interactions no longer require contact between causes and their effects, but can accommodate more distal actions such as gravitational and magnetic attraction. (This expansion of the

¹ See Salmon (1984) for his initial proposal. For a critical response, see Kitcher (1989). Salmon (1994) proposed an alternative account, which in turn has been criticized by Dowe (1995).